REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-36 are presently active in this case. The present Amendment amends Claims 1-5, 7-8, 11-15, 17-18, 21-25 and 27-29; cancels Claims 6, 16 and 26 and adds Claims 31-36.

The outstanding Office Action objected to the title and Claims 2, 4, 6, 7, 12, 14, 16, 17, 22, 24, 26 and 27 because of informalities. Claims 1-3, 5-6, 8 and 9 were rejected under 35 U.S.C. § 102(b) as being anticipated by Zoerner (U.S. Patent No. 5,306,088). Claims 1-8 were rejected under 35 U.S.C. § 102(b) as being anticipated by Sai (U.S. Patent No. 5,765,948). Claims 1-20 were rejected under 35 U.S.C. § 102(b) as being anticipated by Iida et al. (U.S. Patent No. 5,356,220). Claims 21-30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Iida et al. in view of Sai. Claims 1-20 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 and 12-21 of copending Application No. 10/706,935. Claims 21-30 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 of copending Application No. 10/706,935 in view of Sai.

In response to the rejection under the judicially created doctrine of double patenting, Applicants herewith file a terminal disclaimer in compliance with 37 C.F.R. §1.321 thereby overcoming the double patenting rejection of Claims 1-30. For the record, Applicants note that the "filing of a terminal disclaimer simply serves the statutory function of removing the rejection of double patenting, and raises neither presumption nor estoppel on the merits of the rejection."[1]

[1] Quad Environmental Technologies Corp. v. Union Sanitary District, 946 F.2d 870, 874, 20 USPQ2d 1392, 1394-5 (Fed. Cir. 1991).

In response to the objections, the title and the Claims 2, 4, 7, 12, 14, 17, 22, 24, and 27 are amended to correct the noted informalities. In light of their formal nature, the changes to the claims do not raise a question of new matter.

In order to clarify Applicants' invention, Claims 1, 3, 5, 8, 11, 13, 15,18, 21, 23, 25 and 28 are amended. Independent Claims 1, 11 and 21 are amended to recite features from Claims 6, 16 and 26 respectively.

In order to vary the scope of the protection recited in the claims, new dependent Claims 31-36 are added. Claims 31-36 find support in the disclosure as originally filed, for example, at page 1, paragraph [0003], at page 2, paragraph [0004], at page 4, paragraph [0010], at page 6, paragraph [0015] and at page 7, paragraph [0017]. Therefore, the changes to the claims and new Claims 31-36 are not believed to raise a question of new matter.[2]

In response to the rejections of Claims 1-30 under 35 U.S.C. § 102(b) and 35 U.S.C. §103(a), Applicants respectfully request reconsideration of these rejections and traverse the rejections as discussed next.

Briefly recapitulating, Applicants' invention, as recited in Claim 1, relates to a system for monitoring temperature conditions including a fiber optic cable, a light emitting device, an optical receiver and a processor. The light emitting device is coupled to the fiber optic cable and configured to input a light pulse into the fiber optic cable. The optical receiver is also coupled to the fiber optic cable and configured to receive a reflection signal that arises from the input light pulse in the fiber optic cable. The processor is configured to determine temperature conditions on different portions of the fiber optic cable based on the reflection signal. This determination is based on a comparison performed for each different portions of the fiber optic cable. As explained in Applicants' specification, Applicants' invention improves upon conventional systems because different temperature thresholds or limits

[2] See MPEP 2163.06 stating that "information contained in any one of the specification, claims or drawings of the application as filed may be added to any other part of the application without introducing new matter."

values can be allocated to different ranges of the reflection signal transit time, which in turn are respectively allocated to respective zones of the sensor.[3] The claimed invention thus leads to an improved system for monitoring a temperature condition.

In response to the rejections of independent Claim 1, as amended, and dependent Claims 2-3, 5-6, 8 and 9 under 35 U.S.C. § 102(b) as being anticipated by Zoerner, Applicants respectfully request reconsideration of this rejection and traverse the rejection as discussed next.

The Zoerner patent discloses a method and apparatus for monitoring the temperature in a turbine component. The method includes measuring the transit time of a light reflected inside the fiber-optical cable.[4] However, the Zoerner patent fails to teach a processor configured to determine temperature conditions on different portions of the fiber optic cable based on the reflection signal, the determination being *based on a comparison performed for each of the different portions* of the fiber optic cable. This feature was previously recited in Claim 6, which was rejected by the outstanding Office Action, relying on the Zoerner patent at Col. 5, lines 3-6. Applicants respectfully traverse the position that the Zoerner patent discloses such a feature. Indeed, the above mentioned passage from Zoerner merely states: "the site of the temperature change inside the bearing 2 is ascertained from the measurement of the transit time of the reflected light L" which has an intensity I"." In addition, Applicants respectfully note that the rest of the Zoerner patent does not teach or suggest the claimed processor which is configured to determine temperature conditions on different portions of the fiber optic cable based on the reflection signal, this determination being based on a comparison performed for each different portions of the fiber optic cable.

Therefore, the prior art fails to teach or suggest every feature recited in Applicants' claims, so that Claims 1-3, 5, 8 and 9 are patentably distinct over the prior art. Accordingly,

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[3] See Applicants' specification at page 6, paragraph [0015].
[4] See the Zoerner patent, at column 2, lines 11-13.

Applicants respectfully traverse, and request reconsideration of the rejection based on the Zoerner patent.[5]

In response to the rejection of independent Claim 1 and dependent Claims 2-8 under 35 U.S.C. § 102(b) as being anticipated by Sai, Applicants respectfully request reconsideration of this rejection and traverse the rejection as discussed next.

The Sai patent discloses a light-temperature distribution sensor and the associated method using the back scattering light produced by an incident light pulse. More particularly, a temperature distribution of the light transmission medium is calculated on the basis of the value of a product of the normalized intensity distribution signal of the anti-Stokes Raman scattering light and the Stokes Raman scattering light.[6] However, the Sai patent fails to teach a processor configured to determine temperature conditions *on different portions of the fiber optic cable* based on the reflection signal, the determination being based on a comparison *performed for each of the different portions* of the fiber optic cable. The outstanding Office Action relied on the Sai patent at Col. 11, lines 31-41. Applicants respectfully traverse the position that the Sai patent discloses such a feature. Indeed, the above mentioned passage merely states: "The intensity distribution I' is associated, in a one-to-one corresponding manner, with the intensity distribution I obtained in relation to the location on the optical fiber." This passage, like the rest of the Sai patent, therefore does not teach or suggest the claimed different portions of the fiber optic cable on each of which a comparison is performed.

Consequently, the prior art fails to teach or suggest every feature recited in Applicants' claims, so that Claims 1-5 and 7-8 are patentably distinct over the prior art.

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[5] See MPEP 2131: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference," (Citations omitted) (emphasis added). See also MPEP 2143.03: "All words in a claim must be considered in judging the patentability of that claim against the prior art."

[6] See the Sai patent, for example the Abstract.

Accordingly, Applicants respectfully traverse, and request reconsideration of the rejection based on the Sai patent.

In response to the rejection of independent Claims 1, 11 and dependent Claims 2-10 and 12-20 under 35 U.S.C. § 102(b) as being anticipated by Iida, et al. Applicants respectfully request reconsideration of this rejection and traverse the rejection as discussed next.

The Iida, et al. patent discloses a method and apparatus for monitoring temperature of a blast furnace. More specifically, the apparatus includes a fiber optic which is laid in a spiral shape on a surface to be monitored, one end of the optical fiber being connected to a temperature measuring apparatus.[7] However, the Iida, et al. patent fails to teach a processor configured to determine temperature conditions on different portions of the fiber optic cable based on the reflection signal, the determination being *based on a comparison performed for each of the different portions* of the fiber optic cable. The outstanding Office Action relied on the Iida, et al. patent at Col. 3, lines 44-51. The Applicants respectfully traverse the position that the Iida, et al. patent discloses such a feature. Indeed, the above mentioned passage merely states: "a measured position (or a segment) is detected from a time interval from the transmission of the light pulse until the Raman scattering light returns thereby to measure a temperature distribution on the surface of the iron skin based on the intensity on the measured position." The Iida, et al. system, therefore, measures a temperature distribution but does not teach or suggest the claimed determination of a temperature condition on different portions of the fiber optic cable based on a comparison.

Consequently, the prior art fails to teach or suggest every feature recited in Applicants' claims, so that Claims 1-5, 7-15 and 17-20 are patentably distinct over the prior art. Accordingly, Applicants respectfully traverse, and request reconsideration of the rejection based on the Iida, et al. patent.

[7] See the Iida, et al. patent, for example the Abstract.

In response to the rejections of independent Claim 21 and dependent Claims 22-30 under 35 U.S.C. § 103(b) as being anticipated by Iida, et al. in view of Sai, Applicants respectfully traverse the statement that "IIDA'220, to summarize, is shown to teach all the limitations as claimed by Applicant, with exception of the computer readable medium containing the program instructions."[8] In particular and as previously discussed, Applicants traverse the position that the Iida, et al. patent discloses a determination of a temperature condition on different portions of the fiber optic cable based on a comparison. Applicants respectfully traverse, and request reconsideration of the rejection based on Iida, et al. in view of Sai.

Finally, the prior art fails to teach or suggest the features recited in new dependent Claims 31-36, in combination with the features recited in Claim 1. Therefore, Claims 31-36 are further believed to be allowable.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-36 is earnestly solicited.

[8] See the outstanding Office Action, at page 12, lines 17-18.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicant's undersigned representative at the below listed telephone number.

Respectfully submitted,

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